



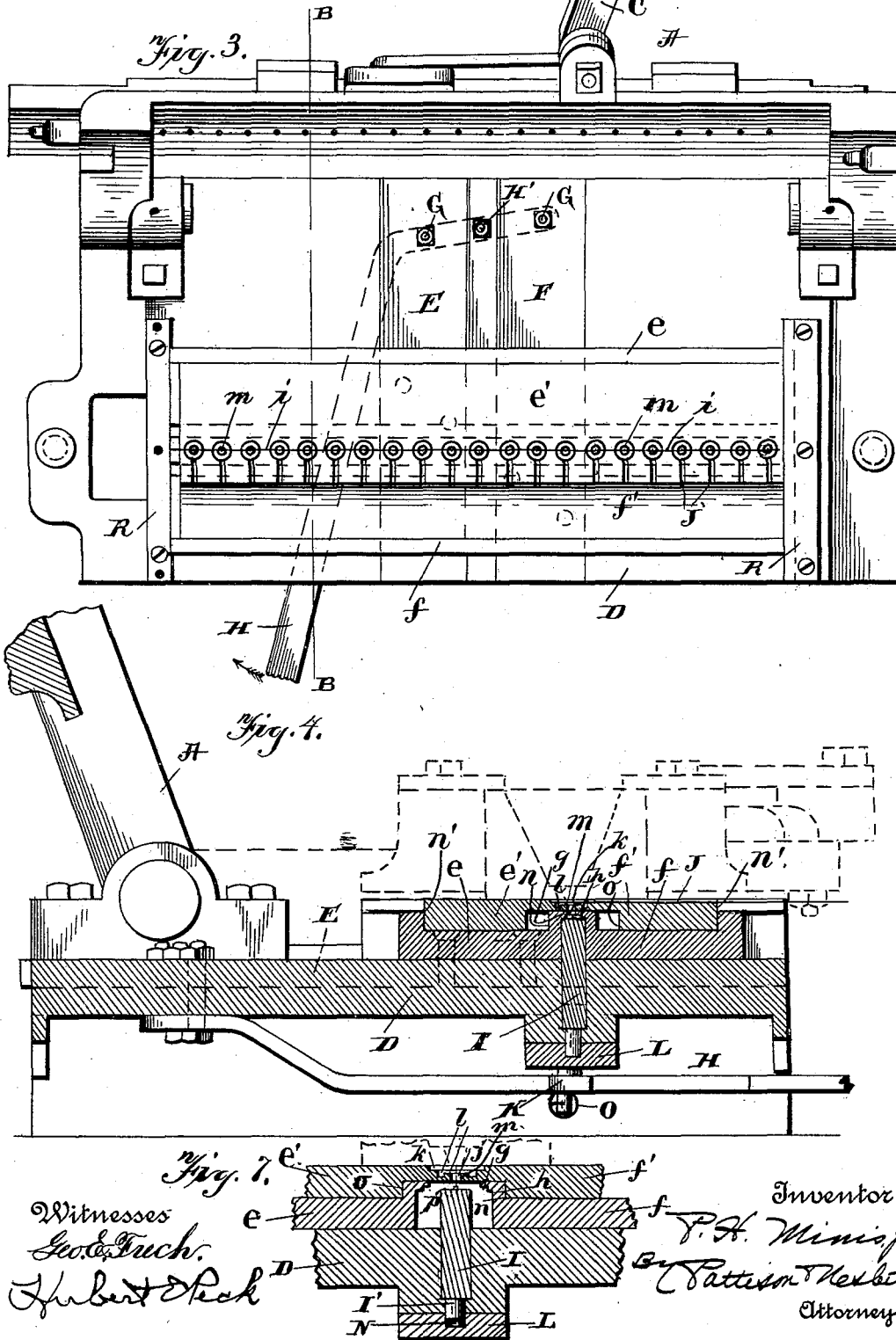
(No Model.)

P. H. MINIS, Jr.  
MOLD.

3 Sheets—Sheet 2.

No. 600,011.

Patented Mar. 1, 1898.



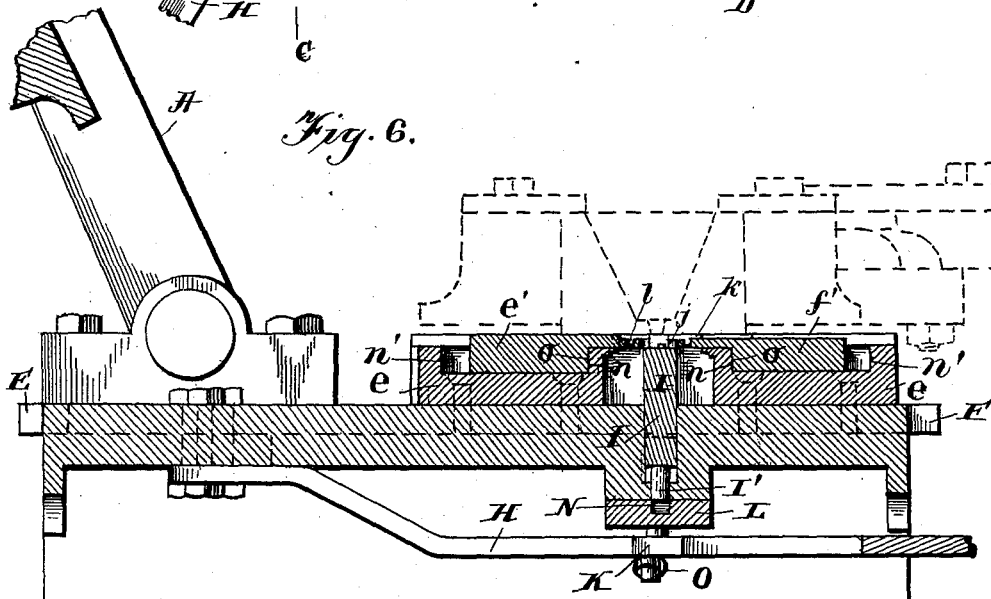
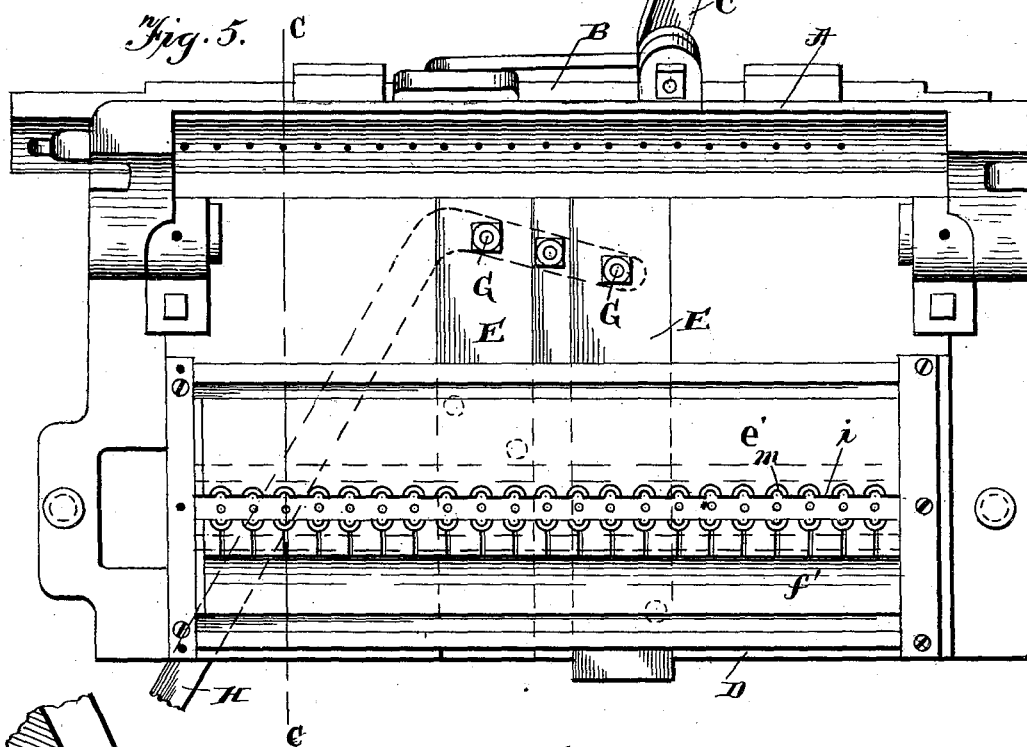
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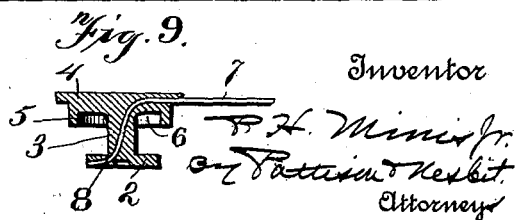
3 Sheets—Sheet 3.

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Witnesses  
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*Hubert Peck*



Inventor

*P. H. Minis Jr.*  
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# UNITED STATES PATENT OFFICE.

PHILIP H. MINIS, JR., OF LEESBURG, VIRGINIA.

## MOLD.

SPECIFICATION forming part of Letters Patent No. 600,011, dated March 1, 1898.

Application filed April 22, 1897. Serial No. 633,376. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP H. MINIS, JR., of Leesburg, in the county of Loudoun and State of Virginia, have invented certain new and useful Improvements in Molds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to molds, and more particularly a mold for casting lead car-seals.

The object of the invention is to provide a mold for casting objects, such as the seal herein disclosed, of irregular form, wherein the mold-walls are divided and afforded independent movement for quickly and effectually releasing the casting. In the present case the centrally-divided mold has each side divided horizontally into two independently-moving sections, two of the sections moving or opening first to release a lateral extension of the cast object, whereby the object may be moved longitudinally to release it from a core part of the mold before the other mold-sections, which carry the core, are separated for the final release of the object.

With these and other objects in view, as will presently appear, the invention consists in the novel features of construction and in the combination and arrangement of parts hereinafter fully described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a plan view of the mold, the gate being shown closed in dotted lines. Fig. 2 is a longitudinal sectional view on line *a a* of Fig. 1. Fig. 3 is a plan view of the mold closed, the gate thereof being raised. Fig. 4 is a cross-sectional view on line *B B* of Fig. 3, the gate being shown in lowered position in dotted lines. Fig. 5 is a view similar to Fig. 3, the mold, however, being open. Fig. 6 is a cross-sectional view on line *C C* of Fig. 5. Fig. 7 is a cross-section of the mold, the lower portions of the sides being open to release the lower headed end of the seal and the mold-bottom or ejector moved vertically to release the seal from the core before the mold sides, carrying the core, are separated. Fig. 8 is a perspective view of the Brooks car-seal, which

the present mold is particularly designed to cast. Fig. 9 is a sectional view of said seal as formed in my improved mold.

The mold is of the usual hinged-top type, of which top *A*, longitudinally-movable gate *B*, and gate-operating lever *C* are of well-known construction and for which no novelty is herein claimed.

In the top surface of base *D* are formed two separated transverse depressions, in which are arranged slides *E* and *F*, the same being pivotally connected by bolts *G* to bell-crank lever *H* on opposite sides of fulcrum-bolt *H'*, which is secured to the base between the slides. The lever extends beneath the base in a diagonal direction and extends beyond the front edge thereof, as shown.

The mold sides consist of four sections arranged longitudinally of and upon the top of the base, the under or bottom sections *e* and *f* being secured, respectively, to slides *E* and *F*, whereby they are moved transversely on base *D* in opposite directions for opening and closing. The top mold-sections *e'* *f'* are arranged, respectively, in longitudinal depressions in the tops of sections *e* and *f*, the depressions being wider than the sections which fit therein, whereby the lower sections are afforded lateral movement independent of the upper sections, for the purpose presently to be explained.

The combined mold-bottom and ejector *I* is arranged to move vertically in a depression formed longitudinally in base *D*. When the mold is closed, as in Figs. 3 and 4, the lower portions of mold-sections *e* and *f* are closed against the mold-bottom and ejector *I*, while the upper edges *g* overhang said bottom slightly above the top plane of the latter to inclose cavity *h*, in which the lower headed end 2 of the seal is formed. The adjacent edges *i* of mold-sections *e'* *f'* close in line with edges *g*, and in the circular vertical opening *j* in the seam of these edges is formed neck 3 of the seal. A slight depression *k* in the top surface of sections *e'* *f'* serves to form top head 4 of the seal, while annular groove 1 in the bottom of depression *k* forms depending annular shoulder 5, the circular core *m*, inclosed by the groove, forming countersunk depression 6. With the mold thus closed and the top lowered the gate is opened and the

molten lead admitted to the several seal-forming cavities. The longitudinal or closing movement of the gate separates the sprue from the seal, thus forming the top flat end of the seal. The top is then swung open and the seals are ready for ejection. It may be stated, however, that before the mold-cavities are filled seal-wires 7 are laid in slots J, extending inward from the edge of mold-section  $f'$  to the mold-cavities, with the bent or hooked ends 8 of the wires extended downward through the openings and engaging overhanging portion  $g$ , whereby they are securely held in place while the seals are being formed around them.

For opening the mold lever H is moved in the direction of the arrow, Fig. 3, thus moving slides E and F in opposite direction, and with them mold-sections  $e$  and  $f$ , which are carried thereby. Edges  $g$  are thus moved sufficiently to release neck 3 and permit the lower headed end 2 to pass therebetween. As soon as sufficient space is thus afforded for vertical movement of head 2 the mold-bottom and ejector I is raised through the medium of lever H, which at this stage of its movement engages projection K on the under side of longitudinally-slotted slide L, moving on headed bolts M, depending from the under side of base D, said slide being formed with inclined or cam depressions N, into which pins I' depend from the under edge of the combined mold-bottom and ejector I, the latter moving upward as slide L is moved longitudinally, as will be understood. This movement raises the seal sufficiently to release shoulder 5 from groove 1, so that mold-sections  $e' f'$  are free to separate, the seals before being thus raised holding said mold parts together. At this juncture longitudinal shoulders  $n$  engage corresponding shoulders  $o$  of the top sections and open the latter, and ejector I continues to rise until in the position indicated in Figs. 5 and 6, in which the mold is wide open and from which the perfect seals are readily removed. Slight projections  $p$  on ejector I extend into the seal-bottoms and serve to retain the seals in centered position on the ejector until removed, which is conveniently accomplished by grasping wires 7. Spring O serves to retract slide L when released by lever H, while springs P, encircling bolts Q, which depend from ejector I through base D, serve to retract the ejector and hold it normally depressed. In closing the mold shoulders  $n'$  engage the rear edges of sections  $e' f'$  and move the latter to closed position, the under sections  $e$  and  $f$  being afforded positive movement in closing by backward movement of lever H. The sliding mold-sections are retained in place by end strips R, removably secured to base D.

I do not desire to limit myself to the exact details of construction herein shown, as manifestly they may be varied in many ways without departing from the spirit of my inven-

tion; and while the mold is here shown and described as particularly adapted for casting car-seals, I do not limit myself to such particular use, as the principles involved in this invention are applicable to the manufacture of articles in many different arts.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An improved mold, including a plurality of half-mold sections arranged in pairs, one pair above the other, an ejector, and actuating mechanism operatively connected to the mold-sections and to the ejector and constructed and arranged to first open one pair of mold-halves and then project the ejector therebetween and finally separate the other mold-halves, substantially as shown and described.

2. An improved mold, having each side formed of two mold-sections arranged one over the other, connections between the sections whereby the upper section is adapted to be actuated by the lower section, and mechanism operatively connected to the lower section and adapted to open same and move it to position for opening the upper section, substantially as shown and described.

3. An improved separable mold, comprising a base, two transversely-movable slides and means for simultaneously actuating them in opposite directions, two oppositely-movable mold-sections, one secured to each slide, a second set of mold-sections arranged adjacent the first-mentioned sections, means for separating the sections of the second set after the separation of the sections of the first set, and an ejector movable between the sections, substantially as shown and described.

4. An improved mold, comprising separable mold sides, an ejector adapted to extend between the sides, a cam member adapted to actuate the ejector, a spring for holding said member normally retracted, and springs for holding the ejector normally depressed, substantially as shown and described.

5. An improved mold, comprising separable mold sides, an ejector, a movable cam member adapted to actuate the ejector, and a lever operatively connected to and adapted to actuate the mold sides and also the cam member, substantially as shown and described.

6. An improved mold, comprising separable mold sides, an ejector provided with depending pins, the longitudinally-movable bar having cam-surfaces adapted to engage the pins and actuate the ejector, and the lever operatively connected to and adapted to actuate the mold sides and also engage and move longitudinally the cam-bar, substantially as shown and described.

7. An improved mold, comprising a base formed with two transverse depressions, slides in said depressions, separable mold sides adapted to be actuated by said slides, the end retaining-strips for the mold-sections, an ejection

tor, movable between the mold sides, and means for actuating the latter and also the slides, substantially as shown and described.

8. In a mold, the combination of the lower  
5 side sections having the meeting top edges, the combined bottom and ejector between the lower sections and normally extending nearly to said meeting edges, the upper side sections uniting in line with the seam of the  
10 lower sections, both sets of sections being formed at the seam-line with an opening ex-

tending to the cavity above the ejector, the top sections being depressed on their top surface and formed with the annular vertical groove, and an operating means, substantially 15 as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP H. MINIS, JR.

Witnesses:

J. M. NESBIT,

A. S. PATTISON.